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# THE HORN SPEAKER

THE NEWPAPER FOR
THE HOBBYIST OF VINTAGE
ELECTRONICS AND SOUND

## DE FOREST—THE DREAMER OF A DREAM THAT CAME TRUE

By C. S. THOMPSON

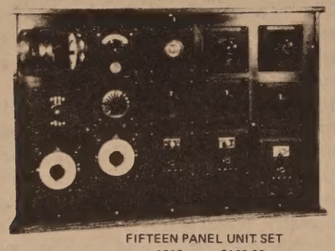
A SLOW-MOVING river—a broad field of green—white tents—the sound of soldiers marching—bands playing—lowering of colors—and my first day in the "Yale" Battery of the Spanish-American War found me alone in the hour of camp hilarity.

My attention was soon attracted by a young soldier, alone too, deep in study, in the tent next to mine. He was a dark, rather tall angular-looking lad.

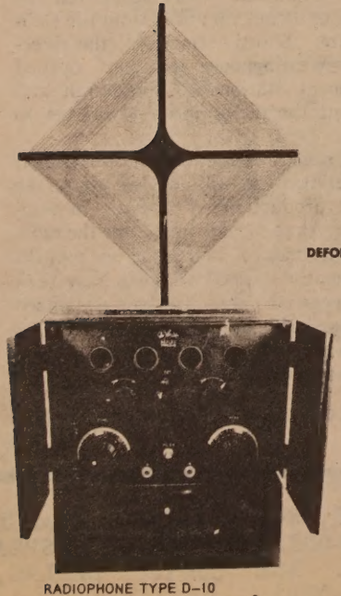
"Studying regulations?" I asked.

"No, just a little of the old college work," he said, without looking up.

DE FOREST



FIFTEEN PANEL UNIT SET
1919 $160.00



DEFOREST

RADIOPHONE TYPE D-10
PORTABLE REFLEX 4 TUBE
1923 $150.00

Radio Broadcast

But that same night, as we were walking along the Niantic River, this soldier-student said to me:

"This little book you've found me reading means a good deal to me, in fact, the subject it deals with will mean everything to me after we've defeated the Spaniards. I feel it may also prove some time of great importance to humanity—I've felt that way ever since I entered college. When my father died, a few years ago, and I was thrown upon my own resources, I decided to continue my studies by working my way through college. I mowed lawns, waited on the table and worked in summer hotels. I graduated from the Sheffield Scientific School in '96, and ever since I've been preparing for a doctor's degree. It is my thesis you saw me working on just a few hours ago—the subject is 'The Reflection of Hertzian waves along Parallel Wires.' Hertzian waves!—that means a whole world to me!—a new world of communication—without wires—wireless! There's no other enterprise like it to-day in fascination and in future possibilities."

Marconi was yet to pave the way for public interest in wireless by his early demonstrations, but even then my soldier friend, Lee De Forest, saw what was to come. The universal development of radio on a practical basis—his life-long dream!

Among the busy duties of camp life, I soon lost track of my enthusiastic companion and forgot the idealistic vision of the future which he had on that one evening revealed to me.

Shortly after the war was over, De Forest obtained his doctor's degree and went to work in Chicago. His first job was at the Clinton Street shop of the Western Electric Company, at $8 a week. Teaching night classes in mathematics at the Lewis Institute and translating French at one time or another for the *Western Electrician* also helped. For a year and a half, the young inventor lived on next to nothing, so that he could conduct his research freely at the Armour Institute.

It was in the midst of these early-day struggles and privations that De Forest developed the self-restoring detector to take the place of the Marconi coherer, the telephone receiver to replace the relay and Morse inker and the alternator-generator and transformer to replace the induction coil and the interrupter.

In 1901, with his apparatus perfected to the point where it could be used commercially, De Forest left for New York. Financial aid was necessary to float his company and develop his new American System, which, even then, had been proved superior to the older and well-established Marconi and Telefunken systems of Europe. Nevertheless, in the summer and fall of that year, De Forest walked his shoes out in Wall Street and Lower Broadway before he obtained the necessary backing.

His first commercial undertaking with the De Forest Wireless Telegraph Company, that same year, was the reporting of the International Yacht races. Then, during the historic tests by the British Post Office between Holyhead and Howth across the Irish Sea, De Forest demonstrated over all competitors the great advantages of his system. In 1904, he attained wider recognition for his system through the spectacular success of the London *Times* war correspondent, Col. Lionel James, in reporting the Naval maneuvers at Port Arthur during the Russo-Japanese War. In the summer of that same year, also, came the first continental overland wireless service, established by De Forest between Chicago and the Exposition in St. Louis. In 1905, the honor of constructing the first high-powered wireless stations at Colon, Guantánamo, San Juan (Porto Rico), Key West and Pensacola, was accorded him by the United States Government.

Success had come, but only for the moment, for the fortune and recognition, won after so many years of struggle and sacrifice, were soon swept away, and the young inventor saw his company in the hands of others, with even his name removed from the corporation which he had made famous.

It was after this period of financial depression that I met him again. De Forest had made a crude laboratory in the old Parker Building in New York City. As he was explaining his laboratory to me, he picked up an audion bulb.

"This is my greatest discovery!" he said. "This little bulb is going to revolutionize the world of communication! It will make it possible for us to talk by radio telephone, not only over short distances, but across the lands and seas. I took out my first patents on this audion a little over a year ago, but it was in the hard days in Chicago that I first conceived the idea.

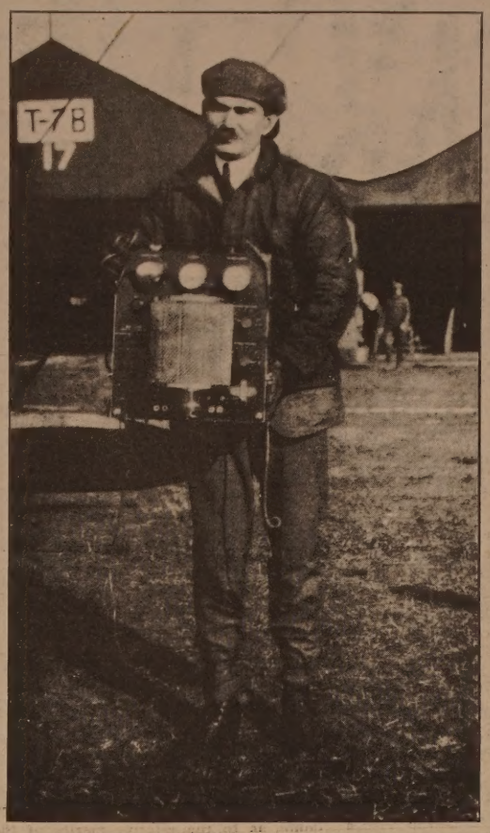
"I was at work in my room, one night, ex-

perimenting with an electrolytic detector for wireless signals. It was my good luck to be working by the light of a Welsbach burner. That light dimmed and brightened again as my little spark transmitter was operated. The elation over this startling discovery outlasted my disappointment when I proved that the startling effect was merely acoustic and not electric. The illusion had served its purpose. I had become convinced that in gases enveloping an incandescent electrode resided latent forces which could be utilized in a detector of Hertzian oscillations far more delicate and sensitive than any known form of detecting device. And now at last I have managed to bottle this same gas effect!"

As he went on, he became even more enthusiastic:

"I've been asked to put radio telephones on the fleet going around the world. It won't be long then before all the ships will be equipped with it. It'll be on the yachts, tug-boats, steamers and sailing vessels too, and we'll soon be able to talk with our friends at sea. Passengers on moving trains will be able to radiophone to stations, and there be connected with the wire telephone. Church sermons, lectures, orchestral and grand opera music, too, will be sent out by radio throughout the country! The world needs this little audion; it is the one thing towards which I have been working all these years!"

In the spring and summer of 1907, through the transmission of music by radiophone, through reporting yacht races on the Great Lakes, and later by broadcasting grand opera from the Metropolitan Opera House at New York, De Forest sought to create interest in the new art.




DR. DE FOREST
Experimented with bulb transmitters for airplane use, during the war, when patriotic service suspended his efforts in the field of broadcasting

Even thus early, foreseeing the field of public interest, he built radio apparatus for the amateur—for the citizen who was interested in picking up words and music out of the air. With his second De Forest Radio company, all his available funds and ingenuity were thrown into the cause of broadcasting.

It is clear that the public of that day was fully informed by De Forest of the possibilities of radio development. Newspapers were filled with his predictions. Reporters obtained from him long interviews. The Sunday pages were highly decorated with the stories of his achievements. Nevertheless, his appeals fell on empty ears. "The radio toy," some described it. Others read and forgot. Leaders in engineering, scientific, and educational circles were skeptical as to the possibilities of broadcasting.

In the end, borne down by commercial rivalry, the Radio Telephone Company through which the inventor had hoped to interest the public, and to establish the radio telephone, was forced to suspend activity.

All that remained for him in the wreckage was the patent rights to the audion. Even these had been returned to him because they were considered of no value!

There was nothing left apparently, in 1911—the year when I next chanced to meet him—nothing except the spirit of other days.

"I've got to begin all over again," he told me, "and that means—just a little more delay. That's all. The day is coming, when things will be different. I don't mean financially. I can stand the poverty and work—I mean the day will soon be here when people will see the thing as I see it—will recognize the part the audion will play in human progress!"

Nevertheless, that same year, De Forest was reading the Help Wanted ads in the very papers which, only a few years before, had been carrying pages relating his achievements. The position of Research Engineer of the Federal Telegraph Company was offered him in San Francisco, and he was glad to take it—finding joy in the thought of being able to experiment further on his audion. In the summer of 1912, in that little Palo Alto laboratory, he was led to still higher dreams of success. The audion had already proved to be a detector of remarkable sensitiveness as well as an amplifier of telephone currents; he then discovered it could also be made to oscillate, or to generate sustained currents of any frequency!

The engineers of the period were fully informed by De Forest on the possibilities of the audion. The newspapers and technical magazines were filled with it. Full descriptions of it were to be found in the patent office applications of 1906. De Forest took out his first patents applications on the audion as a wire telephone amplifier as early as 1907. But it was not until 1912 that the inventor was given his first opportunity to demonstrate the audion before the engineers of the American Telephone and Telegraph Company—the audion which, when further developed by them, made possible the transcontinental telephone service between New York and San Francisco, and later on the radio conversation from Arlington to Honolulu.

With the funds thus secured, the inventor established his De Forest Radio Telephone and Telegraph Company, and thereby sought to realize his first dream of radio broadcasting. In 1916, many an amateur heard his nightly concerts, news bulletins, and election returns by radio from the Highbridge laboratories. The press told of this and of dancing to radio music, and from these reports emanated the idea of the educational as well as the entertainment value of radio. But though the inventor appealed to many, there was still no one to take the first step in this commercial or public enterprise.

Even government officials, who were in a position to help the broadcasting of news and music, vetoed this "pastime" on the score that it interfered with the Navy's wireless telegraph.

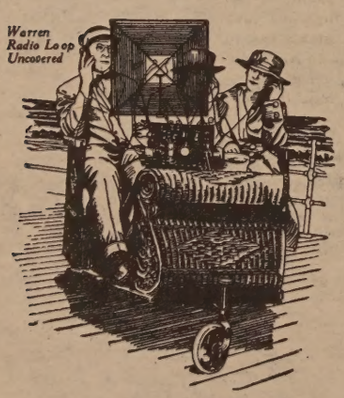
The new era of radio which De Forest had predicted as far back as 1907, which he had so plainly demonstrated, appeared to be fading away!

Patriotic service during the World War interrupted his efforts towards broadcasting. Immediately afterward, De Forest made a desperate appeal to the publishers of the various newspapers of the country for recognition of the many possibilities of radio transmission. Only one responded, and the first newspaper radio service in the world was established in 1920 by the *Detroit News*.

With New York still blind to radio, De Forest went to San Francisco, where he started the broadcasting of orchestral music from the California Theatre. Shortly afterward, the directors of the Westinghouse Company opened their permanent stations at Pittsburgh and Newark. But the public interest was yet to be aroused!

De Forest sailed for Germany in November, 1921 to experiment on still another use of the audion—the production of talking motion-picture films. At about this time came the radio awakening in America, and some six months later, the inventor stepped ashore in New York from a European steamer. His hair was tinged with gray, but in his eyes shone a new light, as he turned to me and said: *"My dream of radio is finally coming true!"*

Radio Broacast, December 1922

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January, 1932 RADIO-CRAFT

# A Modern All-Wave "SUPER"

## *A Description of a Modern Superheterodyne*

By
W. H. HOLLISTER*

**Fig. A**
*Front view of the Lincoln All-Wave Superheterodyne.*

IN the new Lincoln Model DeLuxe SW-32 All-Wave Receiver, a front view of which is shown in Fig. A, we find the latest "last word" in short-wave radio receiver design.

The pentode tube ordinarily is incorporated as a means of obtaining high power output and, due to its rising characteristic, ordinarily requires some form of high frequency compensation in the audio output circuit; however, the power output of the model SW-32 is so great that no advantage was to be obtained by the use of pentode tubes, and the use of type '45 power tubes in push-pull made it unnecessary to include in the output circuit any form of frequency compensation.

### The Receiver

Perhaps the greatest single factor in the high power output of this chassis is the use of four stages of high-gain screen-grid amplification; these screen-grid tubes are V1, V3, V4, V5, and V6 in the schematic circuit, Fig. 1. Each intermediate frequency transformer is shielded, as indicated by the dotted lines. Within each shield can are the I.F. transformers and the primary tuning condenser, one above the other. There are five of these tunable transformers and after they have been adjusted for maximum signal strength from a local station, are to be rebalanced for greatest volume from the weakest station which can be picked up.

The Model SW-32 receiver has been designed for 10 kc. selectivity when all of the circuits are correctly aligned.

The simplicity of control which has been achieved in this receiver design is best appreciated by reference to Fig. A. The central control on the small front panel, of course, is the tuning knob which operates the two-gang bathtub-type variable condenser. The knob to the right of the tuning control operates a combination volume control resistor and off-on power switch; the one at the immediate left varies a trimmer condenser. At the extreme left is another and ornamental knob which controls the band-selector switch; and at the extreme right, a low-high switch which prevents over-

* President, Lincoln Radio Corp.

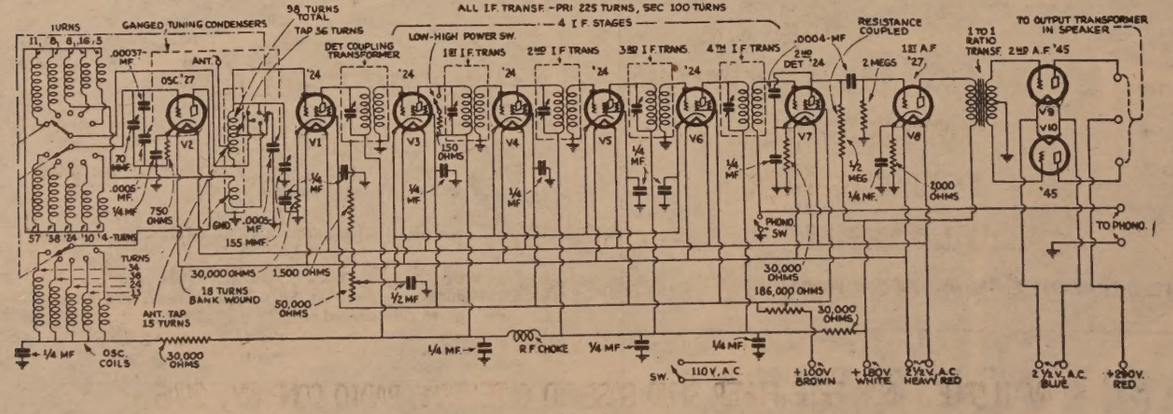


**Fig. 1**

*Circuit diagram of the Lincoln DeLuxe SW 32 All-Wave Receiver. This receiver utilizes a tapped coil arrangement to facilitate wave length changes, obviating the necessity of using plug-in coils. All values are marked on the diagram.*

# AN ALL-WAVE SUPERHETERODYNE

loading the audio system when receiving local stations. The bakelite front panel measures 10 x 7½ in. high.

It is interesting to observe that Lincoln engineers have considered it unnecessary to shield the control-grid leads of the '24's. The wavelength range is covered in the following five jumps: 15-30 meters; 30-50; 50-100; 100-200; and the broadcast band, 200-550.

### The Power Unit

The power pack, a schematic circuit of which is shown in Fig. 2, is connected to the receiver chassis by means of a cable which is color-coded as indicated in the circuits.

Due to the careful design of the R.F. input system, it is possible to use an antenna length up to 100 feet where such pick-up is desirable and convenient; the normal length, however, is only about 15 feet. This pick-up is sufficient for excellent power output on even the most distant and weakest signals; in other words, if there is sufficient energy to actuate the first tube in this circuit, then there is sufficient amplification available to obtain loud-speaker operation.

To accommodate the output circuit to any type of reproducer, the output connections of the type '45 tubes terminate in tip jacks, as indicated in Fig. 1. This makes it quite convenient to use any type of dynamic reproducer, or even a magnetic unit. Of course, the output or matching transformer must be correctly designed for the input and output impedances.

An under-chassis view of this receiver would reveal the simplicity which has been obtained in the parts layout. Here we find the resistors, by-pass condensers, coupling condensers, R.F. choke, input A.F. trans-

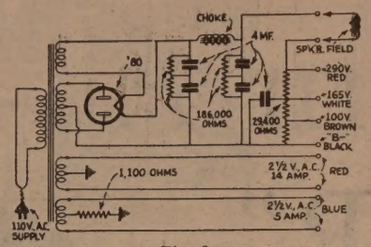


Fig. 2

*Schematic circuit of the power pack of the Lincoln Model DeLuxe SW-32 All-Wave Receiver. Resistors shunt the 4 mf. electrolytic units.*

former, band-selector switch, trimmer condenser, off-on and volume-control resistor unit, low-high switch, and the radio-phonograph switch shown in the schematic circuit; the latter is mounted at the rear of the chassis, together with the output terminals. The chassis, which is of cadmium-plated steel, measures 21 x 10¼ in. deep.

The signal-frequency inductances are wound on threaded bakelite tubes, which are contained in the large shield can immediately in back of the band-selector switch. There are five of these threaded tubes, the four short-wave coils being mounted at the corners of a rectangular bakelite plate; in the center is mounted the broadcast coil.

### Repeat Points

Stations below 100 meters will create a high and low oscillator setting and thus will repeat on the dial. This is often an advantage as harmonics of short-wave code stations might interfere at one position of the tuning dial, for a given station, whereas they would not interfere at the second setting for this station. The recommended intermediate frequency to which this portion of the receiver should be adjusted is 480 kc.

It may be of interest to mention that a two-volt model, the D.C.-SW-10 DeLuxe, has been developed for use where A.C. is not available. It includes a type '30 oscillator, second-detector, and first audio; type '32 first-detector and I.F. amplifiers; and type '31 tubes in the push-pull power output stage.

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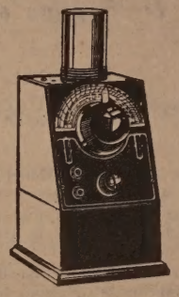

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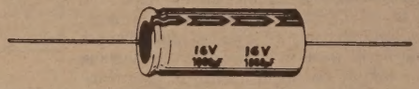


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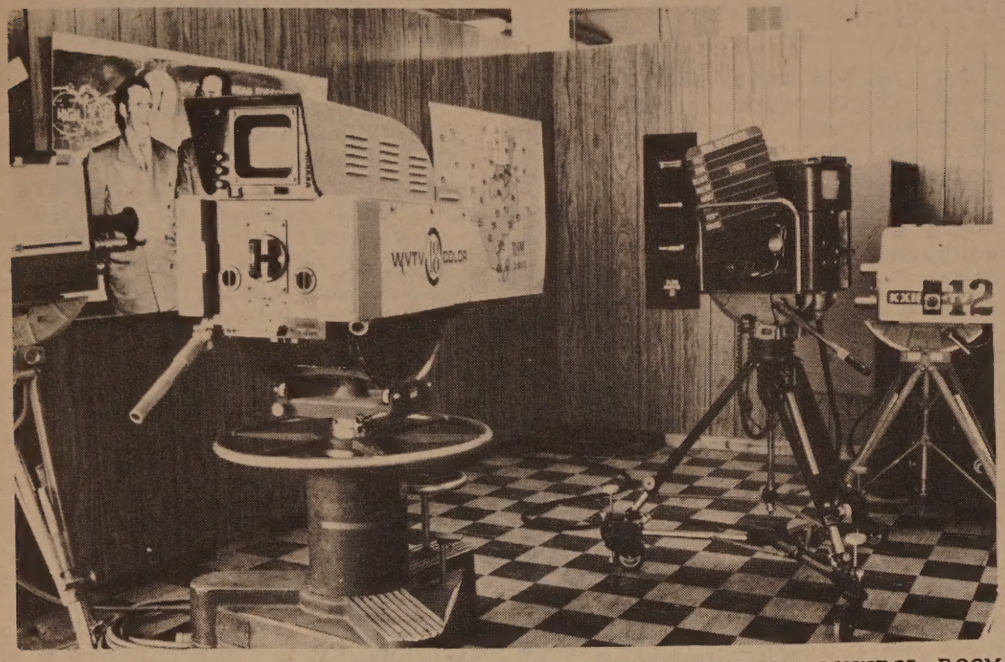



A TYPICAL SIXTIES TELEVISION STATION CONTROL ROOM
photo by Jim Long

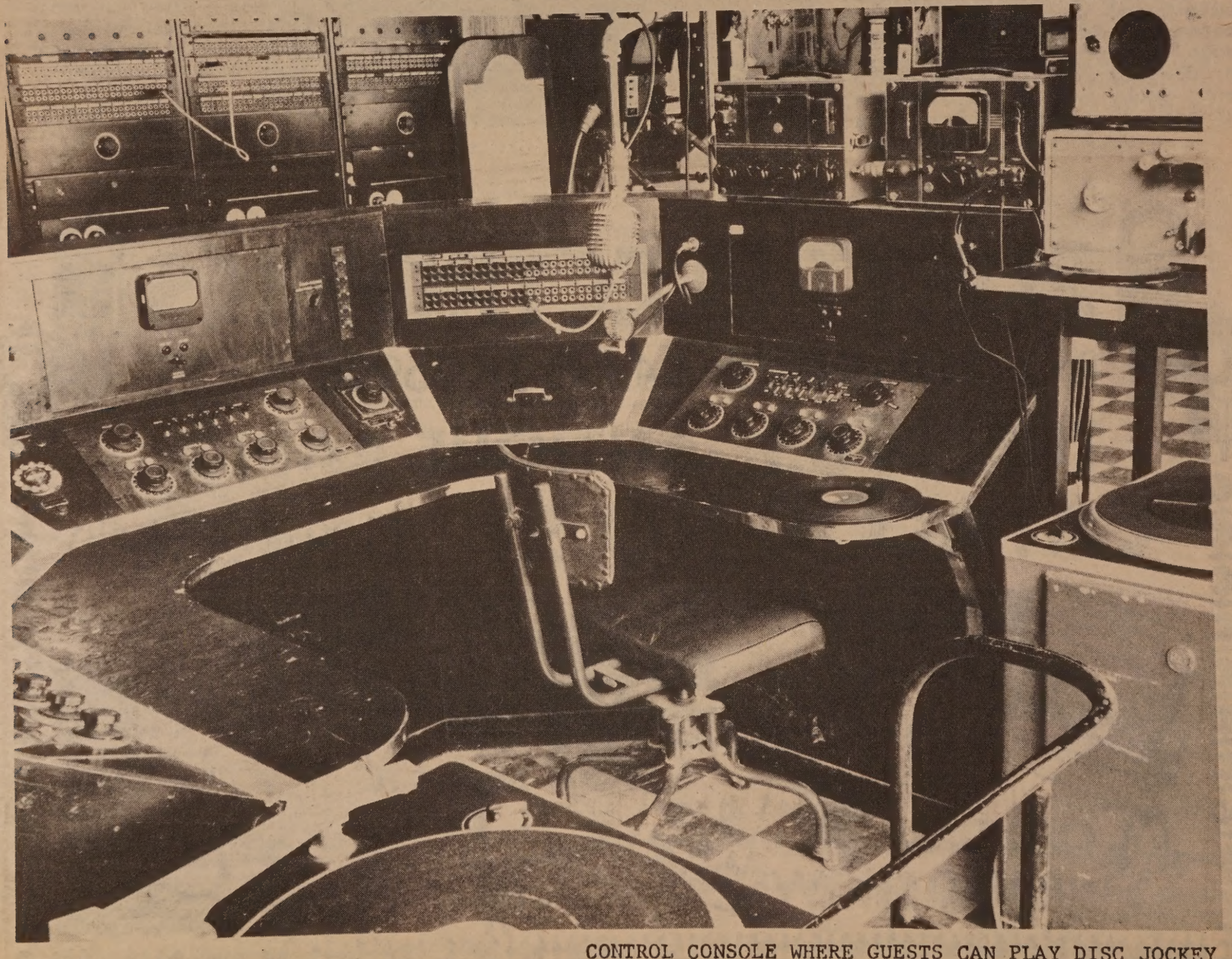
# National Broadcast Museum

By Jim Long

Continued from the June, July and August 1983 edition.

At the National Broadcast Museum displays are organized so that the learning process can be enhanced as visitors participate as well as observe, through the many hands-on displays.

As well as all the more than 50 phonographs mentioned last edition, recorders have



CONTROL CONSOLE WHERE GUESTS CAN PLAY DISC JOCKEY
photo by Jim Long

# Mailbox

their place, too - from early wire recorders of the late forties and paper tape recorders of the fifties to the plastic tape audio and video recorders of the sixties. The history of radio is traced from the crystal sets of 1920. Examples of early ATwater Kent, Grebe, Crosley Operadio and Freshman radio receivers, to name a few, abound. Antique horn speakers and even home made radios can be seen. Visitors can view the first crude type of television "picture tube", circa 1928, as well as the earliest television receivers which used cathode ray tubes originally destined for World War II radar sets. There are rear screen projection sets that, in 1947, used the same projection principle used in the giant screen color television sets of today. Unique aspect of the Museum is that it presents examples of commercial radio and television broadcasting equipment. Two huge radio station transmitters are on display as is studio equipment such as audio boards, turntables, microphones and disc lathes which were used to make transcriptions of radio programs and commercials. One area in the Museum is arranged to depict a typical sixties television station control room, complete with engineering consoles, racks of monitors and other electronic equipment and a film chain for showing motion pictures and titles/ commercial messages contained on photographic slides. Next door to this area is a mini television studio containing specimens of television cameras from the fifties and sixties, including the first type of color camera. A favorite exhibit of visitors of all ages is the working control console of WOAI, where guests can spin records and play "disc jockey."

Local radio personalities and other broadast professionals have dramatized episodes of the "Lone Ranger," the "Shadow" and "Jack Armstrong - The All American Boy," popular programs of the thirties and forties, using the old microphones and sound effects of the period.

Jim,

Please find enclosed $15.00 for two years of THE HORN SPEAKER. There are no collectors of old radios here in Kodiak Alaska. So, I hold the record with 15 oldest being 1924 A-K -)Hi - Hi)-

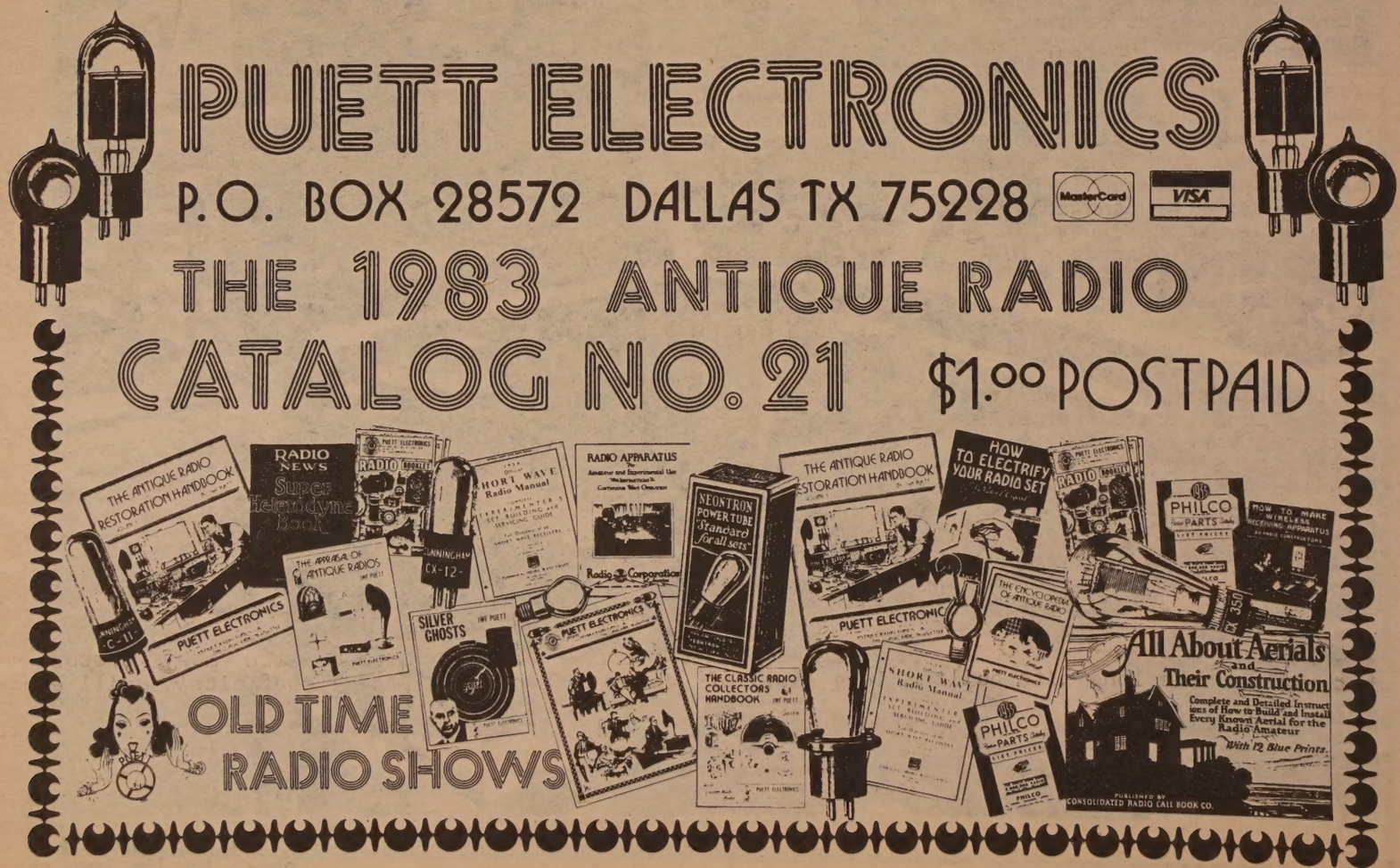
We are semi remote so I look forward to receiving THE HORN SPEAKER.

Thanks much,
Carl Koch AH6Q/KL7
Box - 124 -
Kodiak Alaska
99619

Dear JIm:

Rumblings in the June July August issue about changing the format, paper stock and frequeny of issue of THE HORN SPEAKER raise much concern with me.

I react negatively espeially in the realm of frequency of issue. If you change to a quarterly, we will receive issues so infrequently that we will forget we are subscribers. Also, think about what that would do to people who need to sell and buy what

your readers peddle. A monthly most of the time is infrequent enough. I hesitate to advertise now because the wait is so long and often I can already locate what I need through other channels.

As to the printing and lasting quality of paper, I feel qualified to speak at length on those topics. I headed the big printing department at Oklahoma State University for twenty five years and the the university press for ten. Printing quality comes from using quality materials from beginning to end. This starts with the type used, the illustrations, the darkroom expertise. the use of excellent printing presses and on through the entire process. Quality costs money.

I can't see printing THE HORN SPEAKER on anything other than the present newsprint unless you want to price yourself out of business. Why should anyone want to keep copies more than a reasonable span of years? If proper care is taken of current issues, they should outlast the reader. And unless the entire operation is cleaned up markedly, it would be a disservice to improve the paper without improving the typesetting, halftones and so on. It is possible that the present method of printing with better quality paper would look worse. Good paper requires good to excellent presswork.

I recommend that you check with one of your big printing paper supply houses in Dallas and see if they can supply you with some sample sheets in the corret size of Warren's Olde Style offset paper in the lightest they stock. It may be that 60 lb. is all that is now available but 50 lb. might be better for your use. This particular sheet is widely used in the prodution of permanent university press books where longevity is important, not to mention ease of reading. But it takes good work to get an acceptable job. This paper will last from 100 to 300 years because of the way Warren makes all of its papers. It does not cost more than comparable other sheets made by other companies but without the long life built in.

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FOR SALE- CATHEDRAL, BATTERY and A.C. radios. Send SASE with two stamps. J. Albert Warren, Box 279, Waverly, PA 18471
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MONTGOMERY WARD 1922 WIRELESS CATALOG reprodution, $3.00. 1965 Army Field Radio Manual, special, $2.00. Send stamp for list of old radio books. Add $1.00 Postage for books. Radiographics, Box 18492, Cleveland Heights, OH 44118.
**********
MAGIC EYE TUBES (6U5/6G5). BRAND NEW IN CARTONS FOR $15.00 PLUS POSTAGE. OLD RADIO HOSPITAL; P. O. BOX 31555; HOUSTON, TX 77235. (713) 723-4254 AFTER 6 P.M.
**********
EMERSON RADIO COLLECTOR seeks 10" wooden cased early Emerson TV as well as unusual table radios and radio phonographs. Ray Miller, Box 1711, Oceanside, CA 92054.
**********
E. H. SCOTT QUARANTA, with simplified audio section, Ravinia Grande cabinet, original phono, all mint condition, chassis 100% overhauled. Ultra-rare, $3000.00. -- AM/FM PHANTOM DELUXE, Chippendale Grande cabinet w/phono. Cabinet good, chassis 100% overhauled. $600.00. -- ALL-WAVE XV, Olympia cabinet. Cabinet very good, chassis 100% overhauled, but rusted, speaker reconed. $350.00. -- Mike Stosich, 414 Assembly Drive, Bolingbrook, IL 60439.
**********
RADIO SERVICE MANUALS, TEST EQUIPMENT, PLUS MORE, SASE FOR LIST 10-83. KRANTZ, 100 OSAGE AVENUE, SOMERDALE, NJ 08083.
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FOR SALE - ATWATER KENT model 10-B breadboard, Pilot Radio television with 2 1/2" screen, long list of early radios and TVs from 40 year collection. Send SASE. Box 1733, Traverse City, MI 49685.
**********
FOR SALE: REMLER TYPE 710 RF AMPLIFIER W/ANTENNA COMPENSATOR ON COPPER CHASSIS, CABINET AND ORIGINAL CARTON. $75.00 WITH 2-X199 AND 1-UX120 TUBES. RADIOLA III, GOOD AUDIO $45.00. PARTS FOR A-K 20, 40, 46, 55, BOSCH AND FADA. ALL PLUS SHIPPING, STAN LOPES, 1201-74 MONUMENT BLVD., CONCORD, CA 94520. (415) 825-6865
**********
*14 PAGE LIST OF RADIO MAGAZINES, catalogs, books, service literature and misc. Available October 1st. Send $1.20 in stamps or money. Gary B. Schneider, 9951 Sunrise Blvd., #R-9, North Royalton, OH 44133
**********
CLARION AC-40 (19317- CATHEDRAL- EXC- WORKS) $90 (NICE STYLING; HEADPHONE JACK ADDED ON SIDE MANY YEARS AGO) -- FLEETWOOD , (1925- WOODGRAIN BAKELITE FRONT PANEL- EXC- UNTESTED) $55.00 (BELIEVED TO BE CANADIAN VERSION OF FRESHMAN MASTERPIECE VR PAGE 89 #1) -- SEND LARGE 2 STAMP S.A.S.E. FOR COMPLETE AND UP TO DATE PHOTO LIST. RON BOUCHER, 376 CILLEY ROAD, MANCHESTER, NH 03103, (603) 669-1698.
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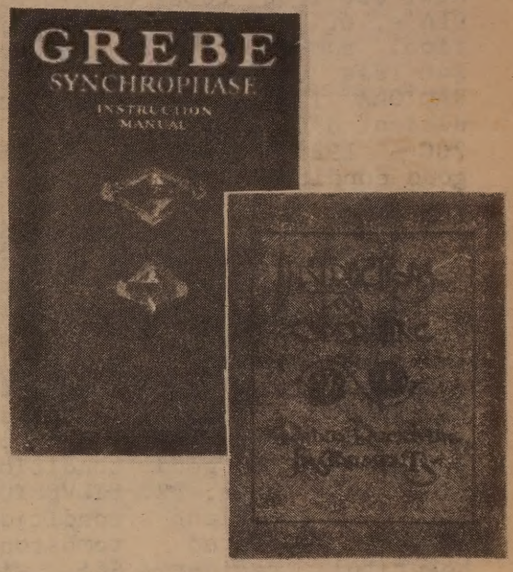


AUTHENTIC OLD TIME GRILL CLOTH HANDWOVEN IN TWO SHADES OF GOLD AND BLACK RAYON. Send $6.95 for 10" x 10" square or $1 for samples. Avaiable in limited quanity in September. -- RADIO AGE has reprinted the Grebe Synchrophase Manual in original brown inks and on high quality paper (not a photocopy). This manual is loaded with history of the company and is documented with many photos, 71 pages. Definitely will enhance your collection. $11.25 ppd. -- Grebe instructions for operating with charts, graphs, block diagrams and schematics of CR-3, CR-5, CR-8, CR-9, RORK, RORD and RORN. Printed in beige cover with deep brown ink, 62

pages. Companion sales brochure showing inside and outside photos of all models above. On high quality gloss stock, 12 pages. $5.50 ppd for both. -- Gerald Tyne's SAGA OF THE VACUUM TUBE in hardcover, $11.20 ppd. and softcover, $8.20 ppd. (limited quanity available). -- Make check payable to Radio Age, 606 Cambridge Road, Augusta, GA 30909.

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APEX METAL BOX AC SET of late 20's. Similar to AK 40 series, very good ondition and working, comes with PEERLESS "box shaped speaker. $65. 2. RADIOLA 20 - excellent to mint condition. $125 less tubes. 3. TYRMAN 50 - very unusual portable set. has built in wooden horn and takes 4 UX 199's and one UX 222. mint condition. $75 less tubes or $120 with. 4. FRESHMAN MASTERPIECE AC FLAT-TOP - small tombstone style set. Refinished and in very nice condition. not working, $45 5. BECKLEY- RALSTON BATTERY SET - excellent condition. very nice oak cabinet. $50 less tubes or $75 with 01A's. 6. FADA 7 - fair condition. comes with loop antenna. $40 less tubes, $65 with. 7. RADIOLA III - excellent condition. $70. less tubes. 8. AK 20C - 1925 compact 5 tube TRF. good condition. $45 less tubes. $70 with 9. AK 32 - 1926 7 tube TRF. excellent condition. $45 less tubes. $80 with. 10. RCA Tombstone - model BT 6-3. farm radio of 1930's. tube compliment 1C6, 34, 1B5, 30, 49, and 49. excellent to mint condition. $50 with tubes. 11. SILVERTONE 1923 - battery operated farm set. tomstone style. fair to good condition. $40 with tubes. 12. SILVERTONE 1919 - excellent condition. battery operated tombstone. beautiful cabinet. $45 with tubes. 13. PHILCO 39-86 - late 30'S farm radio. good condition. $25 with tubes. 14. ENJAY farm radio - tombstone style. good condition. $20 with tubes. 15. AMERICAN BOSCH 460 - AC tombstone. very good condition. not working. $45 with tubes. 16. PHILCO 37-610 - excellent condition. untried. AC tombstone. $45 with tubes. 17. PHILCO 20 CATHEDERAL - this is a restored set. cabinet is not original. looks good however and works some. chassis good condition. $30 with tubes. 18. PHILCO 60 CATHEDRAL - excellent condition. refinished. untried. $75 with tubes. 19. MAJESTIC B BATTERY ELIMINATOR - untried $15. --- ------ 20. AIRLINE KIT / PEERLESS CATHEDRAL SPEAKER - 5 tube 3 dial set of 20's in excellent to mint condition in beautiful oak case. speaker fair to good condition. both for $50 less tubes or $75 with. 21. AMERICAN BOSCH model 04 - small AC of 30's. cabinet excellent. not working. similar to Philco Jr. $28. 23. WESTERN ELECTRIC 7A AMPLIFIER - EARLY 3 tube amp. (See VINTAGE RADIO). excellent condition. $85.00 less tubes. 24. CROSLEY 51 - early two tube receiver. very good condition. $80. less tubes. 25. RCA 5T - AC tombstone set. excellent condition. works great. $50. 26. DEWALD CATHEDRAL - excellent - refinished. works. $90. 27. PHILCO 50-T-1400 TV - one of first Philco television sets. mint condition with original operating manual and schematics. not working. 12 inch screen. $50 complete. 28. REKORD JUNIOR 196 - small German made AC set. works. excellent condition. $25. 29. RCA 100B SPEAKER - fair condition. needs grille cloth on one side. $15. 30. CROSLEY 90 - large 1926 RFL 6 tube console. excellent condition. no shipping. $45 less tubes. 31. METEOR CATHEDRAL - beautiful barn-shaped art-deco cathedral. excellent condition. works. very unusual. $120. 32. CLARION 80 - vewy good condition. console. not working. no shipping. $40. 33. ZENITH CONSOLE - AC-DC (6V OR 110V). has short wave. untried. excellent condition. no shipping. $40. 34. Majestic B eliminator - $15. 35. ACME B ELIMINATOR - $10 less tube. $12 with tube. 36. assorted antique headphones - $10 each. 37. STEWART WARNER 91-62 - fair condition. $10 with tubes. 38. NATIONAL RADIO INSTITUTE RADIO COURSE - Over 100 phamplets from 1931 to 39. very good condition. $25 for set. 39. AC tubes of 20s and 30's. Send need for quote. 40. 01A's. $5 each. duds $2 --- WANTED: base and driver for Madera/ Cleartone horn. Bell for Musicmaster horn, AK 558, 165 or 217. ------ FIRESIDE WIRELESS - PRICES DO NOT INCLUDE SHIPPING. ALL BATTERY SETS ARE LESS TUBES UNLESS OTHERWISE STATED. MAKE MONEY ORDERS OR CHECKS PAYABLE TO GARY HILL. CALL TO RESERVE SETS IF POSSIBLE: (412) 654-9335 -- FIRESIDE WIRELESS, 1507 RIDGE AVENUE, NEW CASTLE, PA 16101.

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ELECTRIC: PHILCO 20 - excellent, plays good, $90. ** PHILCO 20 - miniature console, excellent, plays good, rare, $90. ** U. S. GLORITONE 26- excellent, plays extremely good $90. ** PHILCO 60 - very good, hums loud $60. ** KOLSTER K-60 - excellent, works, gothic, $65. ** RCA ? - early screen grid circuit, excellent, works, $55. ** HALLICRAFTERS - lunch box radio in original box, never plugged in, $50. ** STROMBERG CARLSON shortwave converter, excellent, 4 tube circuit, $70. ** PHILCO 116 - very good, 5 bands, unusual, works, $55. ** NATIONAL NC - 44 page 239 F.O.S., very good, $45. ** VIDIODYNE TV - 6" tube, channel 1, very good, $75. ** HALLICRAFTERS - projection TV, PAGE 99 F.O.S., WITH CABINET $80 ** ATWATER KENT 40 - excellent, works, $50. ** AK 46 - with F-2 speaker, very good, works, $75. ** CROSLEY 148 - very good, plays, curved top $55. ** CROSLEY 5M3- good, plays, small flat top $35. ** BATTERY: (with tubes) ** GREBE CR-9 - excellent $350. ** GREBE CR-5 - excellent $350. ** AMBASSADOR - early 3 tube, red and black marble bakelite front $65. ** CROSLEY TRIRDYN - very good $85. ** RADIOLA IIIA - excellent, no tubes $120. RADIOLA 28 - excellent, with loop, can ship U.P.S. $120. ** HORNS: MAGNAVOX M-1A - excellent, works $75. ** BRANDES TABLE TALKER - very good, works $50. ** RCA UZ-1325 - excellent, works $75. ** BARTLETT THOMPSON MODULATOR - good, works $50. ** TRIMM HOME SPEAKER - good, works $50. ** ATLAS - excellent, works $75. ** SPEAKERS: ATWATER KENT E-3 - excellent, works $35. ** PEERLESS - excellent, works $35. ** RCA 100 - very good, works $25. ** CROSLEY type F - excellent, untried $25. ** KOLSTER 6 - excellent, works $40. ** ATWATER KENT E - excellent, works $50. ** TEMPLE - excellent, works $30. ** 01A's- 10 for $35. **** Phone (412) 656-0338 * Jerry Finamore, 501 Miller Avenue, New Castle, PA 16101.

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RADIOS, SPEAKERS, NEW AND USED TUBES, PARTS, SPEAKER CORDS BROWN BLACK $3.25. SASE FOR LISTS. FRANKLIN HASS, 207 WEST 30TH, HUTCHINSON, KS 67501.

**********

2 AK HORNS less bases. $15.00 each. NRI TESTER snd COURSE $18.00. CLOUGH- BRENDEL SIG. GEN. $25.00 SOLAR CAP. CHECKER and BOOK $22.50. ESSENTIALS OF RADIO, NO COVER $3.00. WANTED: BOTH REAR COILS FOR AK-12BB. JOHN MARTIN, 817 COOK, BILLINGS, MT 59101.

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# WANTED

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INSTRUCTION MANUAL FOR SUPREME ANALYZER MODEL 333. ORIGINAL OR PHOTO COPY. WRITE GERALD WEISS, N-89 W- 16229 MAIN STREET, MENOMONEE FALLS, WI 53051

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WANTED: WESTERN ELECTRIC audio products, Marantz and McIntosh tube audio equipment, surplus tubes and anything related. Contact Charles Dripps, 4331 Maxson Road, El Monte, CA 91732 (213) 444-7079

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WANTED: 21 INCH OAK OR MAHOGANY MUSIC MASTER BELL. CONDITION NOT IMPORTANT. CHARLIE STEWART, 900 GRANDVIEW AVENUE, RENO, NV 89503

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WANTED: ATWATER KENT CONDENSERS variable, detector and amplifier tube panel and filament control and switch panel. William L. Compton, 11 Harbor Woods Drive, Clearwater, FL 33519.

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WANTED: 1 TUBE SETS, CRYSTAL SETS, GREBE CR EQUIPMENT. RAY GARNER, ROUTE 1, BOX 320, BIG SANDY, TN 38221.

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RCA VICTROLA CREDENZA 8-30. EDISON OPERA. HMV 202, 203. Western Electric tubes, amps, mixers, consoles, networks, drivers, tweeters, horns, speakers, parts. Tel: (213) 576-2642. David Yo, POB 832, Monterey Park, CA 91754.

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WANTED: EARLY BATTERY RADIO PARTS, ALSO JUNKER PANELS/ BASEBOARDS FOR STRIPPING. BROKEN PANELS OK, BUT DO NOT WANT ANY CABINETS. SEND LIST AND PRICES TO: BOB, W6ME, 4178 CHASIN STREET, OCEANSIDE, CA 92056

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RADIO HORN SPEAKERS, NEED NOT WORK BUT MUST BE COMPLETE AND IN GOOD CONDITION. ALSO ORIGINAL SPEAKER FOR PHILCO 20 CATHEDRAL RADIO, MUST BE IN GOOD WORKING CONDITION. HAVE BELL FOR AK. TYPE "R" HORN SPEAKER FOR SALE OR TRADE. BRIAN RHODES, 2413 GRIER AVENUE, LINDEN, NJ 07036.

---

WANTED: BOOK "RADIO TROUBLE-SHOOTERS HANDBOOK" BY GHIRARDI, REPRODUCTION OF GUARANTEED CARD FOR AK-10 #4700, PHILCO 70 OR 90, C. WERBLAN, 1426 TOMILU DRIVE, GIRARD, OH 44420.

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WANTED: SPARK EQUIPMENT- HELIX, OSCL. XFRMR, XMT CONDENSER (MOULDED, LEYDON), KEY, HOT WIRE AMMETER, ROTARY SET, MURDOCK, THORDARSON CATALOGS, INFO. ELECTRICAL EXPERIMENTERS MAGS, ETC. PRIOR TO 1920. R. GROSHONG, 6604 KENT DR. NE, CEDAR RAPIDS, IA 52402.

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WARE AC RADIO MANUFACTURED BY SNEDEN WARE ABOUT 1930, WRITE JIM LIEBMAN, 5757 E 14 STREET, TUCSON, AZ 85711.

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HALLICRAFTERS SX-28, S-20R, KNIGHT "OCEANHOPPER". SEND PRICE AND DESCRIPTION WITH SASE. JOE WATSON, 3300 ARROWHEAD CIRCLE, ROUND ROCK, TX 78664

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WANTED: ONE LATE 1920's style 0-2000 and 0-12 ohms 2 watt wire wound potentiometer. Shaft 1/4" x 1". All makes of KINO lamps and scanning discs. Would welcome vintage TV collectors interests in any construction projects. D'Arcy Brownrigg, Chelsea, Quebec, J0X 1N0, Canada.

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WORKING POWER TRANSFORMER FOR Echophone model 60 cathedral. Also old style speaker grille cloth for 1930's, 1940's AC radios. Richard Brown, 117 Meisel Avenue, Springfield, NJ 07081, (201) 467-9628.

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WANTED: POWER TRANSFORMER FOR RCA RADIOLA 10AC AND 60. STAN LOPES, 1201-74 MONUMENT BLVD., CONCORD, CA 94520 (415) 825-6865

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RADIOLA R.S. AERIOLA MODEL R.E. CRYSTAL SET. AND ANY OTHER RADIOLA, AERIOLA SERIES. BILL BEATON, 79 MEADOWLANDS DRIVE, W., NEPEAN, ONTARIO K2G 2R9 (613) 224-1789.

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WANTED: FOR A SPECIFICALLY CHELSEA SUPER 6, 1926, 5 tube TRF battery radio, schematic and one original black medium gloss bakelite control knob, 1&1/4D.x3/8H. fluted, a 1/2"L slightly raised arrow on a low curved top. D'Arcy Brownrigg, Chelsea, Quebec, J0X 1N0, Canada.

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PENNSYLVANIA WIRELESS RADIOS, made in New Castle, Pa. Any parts, nameplates or literature. I have excellent trade items or cash. Jerry Finamore, 501 Miller Avenue, New Castle PA 16101. Phone (412) 656-0338.

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EMERSON RADIO COLLECTOR seeks 10" wooden cased early Emerson TV as well as unusual table radios and radio phonographs. Ray Miller, Box 1711, Oceanside, CA 92054.

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WANT WIRELESS SPECIALTY TRIPLE DETECTOR STAND- WILL TRADE CROSLEY PUP, PHILCO 90 OR ANY 2 OF THE FOLLOWING CRYSTAL SETS: PANDORA, STEINITE, PHILMORE BLACKBIRD, PIED PIPER OR PAY $200.00 CASH. NORMAN HERTZ, 17 YUCCA DRIVE, STATEN ISLAND, NY 10312 (212) 967-1025.

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THE HORN SPEAKER

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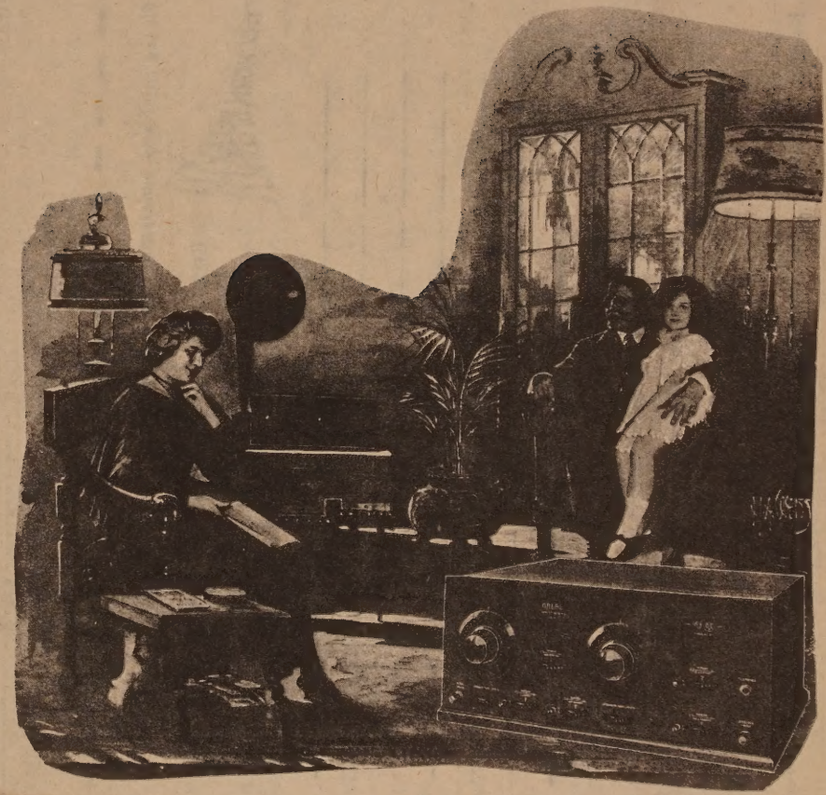
1983



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